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PREPARATORY COMMITTEE FOR THE
GLOBAL CONFERENCE ON THE
SUSTAINABLE DEVELOPMENT OF
SMALL ISLAND DEVELOPING STATES
First session
30 August-10 September 1993
Item 2 (c) of the provisional agenda*

PREPARATIONS FOR THE CONFERENCE: REPORTS FROM REGIONAL TECHNICAL MEETINGS

Report of the Regional Technical Meeting for the Atlantic/Caribbean/Mediterranean, Port-of-Spain, Trinidad and Tobago, 12-16 July 1993

Note by the Secretariat

1. The General Assembly, in its resolution 47/189 of 22 December 1992, stressed the importance of holding regional technical meetings on the sustainable development of small island developing States as a means of preparing substantive contributions to the Conference, and invited relevant regional and subregional bodies to organize such meetings as soon as practicable, preferably in the first half of 1993.

2. Annexed to the present document in the language of submission only is the report of the Regional Technical Meeting for the Atlantic/Caribbean/Mediterranean, held at Port-of-Spain, Trinidad and Tobago, from 12 to 16 July 1993. The meeting was organized by the Caribbean Community Secretariat.

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* A/CONF.167/PC/5 and Corr.1.

ANNEX

REPORT OF THE

REGIONAL TECHNICAL MEETING

FOR THE ATLANTIC/CARIBBEAN/MEDITERRANEAN*

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PREPARATORY TO THE GLOBAL CONFERENCE ON THE SUSTAINABLE DEVELOPMENT OF SMALL ISLAND DEVELOPING STATES

PORT-OF-SPAIN
REPUBLIC OF TRINIDAD AND TOBAGO
12-16 JULY 1993

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* The present report has been reproduced as submitted.

OPENING CEREMONY

1. Senator the Hon. Dr. L. Saith, Minister of Planning and Development, Trinidad and Tobago extended a particularly warm welcome to the participants. In his feature address, the Minister drew attention to the need among other things, *to deal with the limitations which the small base of land and other resources tend to place on our development possibilities*, and noted that, *An ever present challenge is to devise strategies to enlarge the envelope of opportunities open to us to improve the living standards of our people in an enduring manner.* Reminding the Meeting that the Global Conference to be held in Barbados in April 1994 will *provide a unique opportunity for our countries to focus international attention specifically on the characteristics and needs of the small island States*, the Minister encouraged the Meeting to ... *consider how we can use co-operation as an effective instrument to neutralise or minimise the structural limitations of size.*

2. Senator the Hon. L.H.V. Lewis, Minister of State in the Prime Minister's Office, Barbados made a statement on behalf of the CARICOM States. The Minister stressed the importance of the Meeting as marking *a milestone in the continuing struggle of small island developing States to gain recognition for their own unique problems in a rapidly changing and complex world.* He saw the Meeting as having the *aim of charting the course for more sustainable development in our countries.*

3. Statements were also made by Cuba on behalf of non-CARICOM Caribbean countries and by Cape Verde on behalf of the Atlantic countries, as well as by a representative from the United Nations Department for Policy Coordination and Sustainable Development.

4. A representative of the Secretary-General of the Caribbean Community, on behalf of the participants, thanked the Minister for his inspiring address and for the warm welcome extended.

5. The Opening Ceremony was chaired by Mr. C. Applewhite, Director of the Economic Commission for Latin America and the Caribbean (ECLAC), Sub-regional Office, Port-of-Spain, Trinidad and Tobago.

6. The List of Participants is attached as appendix I to this Report.

ELECTION OF OFFICE BEARERS

7. Ms. C. Robinson-Regis, Minister in the Ministry of Planning and Development of Trinidad and Tobago with responsibility for Environment was elected as Chairperson, and the representatives of Cuba, Cape Verde and Malta, were elected as Vice-Chairpersons.

ADOPTION OF THE AGENDA
(Item 1)

8. The Provisional Agenda, as amended, was adopted and is attached as appendix II.

OVERVIEW OF THE SPECIAL PROBLEMS OF SMALL ISLAND DEVELOPING STATES WITH PARTICULAR REFERENCE TO THE ISLANDS OF THE CARRIBEAN, ATLANTIC AND MEDITERRANEAN REGIONS

(Item 2)

9. This Agenda Item was considered in Plenary. There was extensive discussion on the general characteristics of SIDS, their special vulnerabilities and shared specificities, as well as on the constraints and options for their sustainable development. Views were exchanged on the state reached in the development of vulnerability indices and other relevant indicators. It was agreed that research and further work in this regard should be continued. It was also agreed that the special case of SIDS should be advanced at the Preparatory Committee Meeting and at the Conference in Barbados.

PRIORITY AREAS FOR SUSTAINABLE DEVELOPMENT OF SMALL ISLAND DEVELOPING STATES

(Item 3)

10. Parts I, II and III were first considered in six Working Groups. The subjects were allocated as follows:

Part I **Management of Environmental Problems of Small Island Developing States**

Working Group I	**Working Group II**
Agenda Sub-Item	**Agenda Sub-Item**
- Natural and Anthropogenic Environmental Disaster Preparedness.	Pollution and Waste Management
- Climate Change, Sea Level Rise, and Climate Variability	

Part II **Integrated Management of Natural Resources**

Working Group III	Working Group IV
Agenda Sub-Item	**Agenda Sub-Item**
- Coastal and Marine Resources	- Land Resources
- Energy Resources	- Fresh Water Resources
- Tourism	- Biodiversity Resources

Part III **Capacity Building**

Working Group V	Working Group VI
Agenda Sub-Item	**Agenda Sub-Item**
- National Institutions, Administrative and Implementative capacities	- Science and Technology, including indigenous knowledge.
- Regional Institutions, Regional Implementation, Technical Cooperation	- Human Resource Development, including Education, Training, Health, Population.
	- Information
- Regional Transportation and Communication Systems	- Finance, including insurance.

11. These Groups were chaired by the following persons:

Ms. Beverley Miller	-	United Nations Environment Programme (UNEP)
Dr. Ted Aldridge	-	Jamaica
Dr. Querino Richardson	-	Netherlands Antilles
Dr. Selwyn Dardain	-	Trinidad and Tobago

Ms. Angela Cropper	-	International Union for Conservation of Nature and Natural Resources (IUCN)
Ms. Florabelle Nurse	-	Trinidad and Tobago

12. Reports from the Working Groups were examined in Plenary Session and approved as amended.

IMPLEMENTATION, MONITORING AND FOLLOW-UP

(Item 4)

13. This item was not formally discussed. However, some aspects of it arose during discussions of the two previous items.

14. The results of the plenary discussions on Item 2 and the recommendations adopted on the reports of the Working Groups on Item 3 have been incorporated in a separate substantive Report. This is attached as appendix III.

Appendix I

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Mr. Oswaldo Cruz	-	

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Appendix II

AGENDA

AGENDA NO.	
1	ADOPTION OF AGENDA
2	OVERVIEW OF THE SPECIAL PROBLEMS OF SMALL ISLAND DEVELOPING STATES WITH PARTICULAR REFERENCE TO THE ISLANDS OF THE CARIBBEAN, ATLANTIC AND MEDITERRANEAN REGIONS
	: Current Trends in the Socio-economic development of Small Island Developing States
	: The nature and magnitude of specific vulnerabilities of Small Island Developing States, including indicators of vulnerability
	: Prospects, constraints and further options for Sustainable Development
3	PRIORITY AREAS FOR SUSTAINABLE DEVELOPMENT OF SMALL ISLAND DEVELOPING STATES:

PART I

< Management of Environmental Problems of Small Island Developing States

- Climate Change, Sea Level Rise and Climate Variability (including coral bleaching, tropical storms, storm surges, etc.)

- Natural and Environmental Disaster Preparedness (including early warning systems, predictive models, oil spill contingency planning, storm resistance construction, disaster mitigation and disaster relief mechanisms)

- Pollution and the Management of Waste

  : Marine Pollution including Ship Generated Wastes

  : Transportation Hazardous and Radioactive Wastes

  : Land-based Sources of Pollution

PART II

< Integrated management of natural Resources

- Coastal and Marine Resources

- Fresh Water Resources

- Land Resource (including Sustainable Agriculture and Forestry)

- Biodiversity Resources

- Energy Resources

- Tourism

PART III

< Capacity Building

- National Institutions, Administrative and Implementative Capacities
- Regional Institutions, Regional Implement-ation, Technical Cooperation
- Regional Transportation and Communication Systems
- Science and Technology, including indigenous knowledge
- Human Resources Development, including Education, Training, Health, Population
- Finance
- Information

4 IMPLEMENTATION, MONITORING AND FOLLOW UP

- National Implementation (including recommendations for national Capacity Building
- Regional Implementation (including review of Relevant Regional Institutional Arrangements and, where appropriate, Recommendations for Improvement)
- International Implementation (including Review of International Institutional Arrangements for Response to the Sustainable Development needs of Small Island developing States, and, where appropriate, Recommendations for Improvement)
- Recommendations for monitoring and follow-up within the Un System

5 ADOPTION OF REPORT OF THE MEETING

Appendix III

REGIONAL TECHNICAL MEETING

FOR THE ATLANTIC/CARIBBEAN/MEDITERRANEAN

PREPARATORY TO THE GLOBAL CONFERENCE ON THE SUSTAINABLE DEVELOPMENT OF SMALL ISLAND DEVELOPING STATES

SUBSTANTIVE REPORT

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PORT-OF-SPAIN
REPUBLIC OF TRINIDAD AND TOBAGO
12-16 JULY 1993

CONSTRAINTS AND OPTIONS

Small Island Developing States are afflicted by economic difficulties and confronted by development imperatives similar to developing countries generally. SIDS however have peculiar vulnerabilities and characteristics. These two sets of circumstances often combine to compound the difficulties of SIDS in their pursuit of sustainable development.

There are several factors which intensify the vulnerability of SIDS. Detailed analysis of the SIDS in the Atlantic, Caribbean and Mediterranean regions strongly confirms the general situation of SIDS. The major characteristics of the SIDS are discussed briefly hereunder.

Firstly, many SIDS are prone to, and greatly affected by, natural and man-made disasters and hazards. These disasters and hazards include hurricanes, earthquakes, droughts and climate variabilities, as well as the dumping and spills of oil and hazardous and toxic materials and wastes on the land and in the sea around them. They are also susceptible to adverse consequences of any rise in sea levels. The impact of these occurrences tends to be very severe and pervasive, as relatively high proportions of the population and economy are usually directly affected.

Secondly, small islands are nearly wholly coastal zones which should be managed in an integrated manner. They are biologically productive but are subject to stress from a number of elements including the heavy concentration of settlements and economic and recreational activities on relatively small areas. The range and quality of skills required for such integrated management often place severe strains on the limited technical resource base of SIDS.

Thirdly, there are a number of disadvantages which derive from small size. These are magnified by the fact that many of these island states are not only small but are comprised of a number of small islands. There is usually a narrow range of resources which forces undue specialisation; excessive dependence on international trade and hence exposure to global developments; high population density which increases the pressures on the limited resources; overuse of resources and premature depletion; relatively small water sheds which could easily reach, or be reduced below, the critical minimum; costly public administration and infrastructure, including transportation and communication; limited institutional capacities and domestic markets which are too small to provide significant scale economies while limited export volumes, sometimes from remote locations lead to high freight costs and reduced competitiveness. Small islands tend to have high degrees of endemism and levels of biodiversity (number of species per square kilometre) but the relatively small numbers in the various species carry high risks of extinction and create need for protection.

Fourthly, many of these States have absolutely small populations and limited scope for the full utilisation of some highly specialised expertise. They experience high migration especially of the skilled human resources. The migration of the skilled manpower not only places undue burden on the training facilities but forces SIDS to import, at high cost, foreign expertise since the intricate nature of many of their problems require the services of the highest quality expertise.

Fifthly, the capacity of many SIDS to generate internal savings and revenues, even at very high per capita rates of savings and taxes, is limited. This forces a high dependence on external financing for private investment as well as for public sector activities.

Sixthly, the search for economies of scale tends to ensure that the total production of SIDS is contributed in large measure by a narrow range of crops, minerals or industries. Any adverse development in respect of their main activity, whether arising from production or marketing factors or from natural disasters, often leads to significant reductions in output, foreign exchange earnings and, in cases, employment.

Seventhly, partly because of their small size and vulnerability to natural and man-made disasters, SIDS, even as groups of States, are often classified as high risk entities. This has led to the unavailability or exorbitant costs of insurance and re-insurance with adverse consequences for investment, production costs, government exposure and infrastructure.

Eightly, the per capita income of many of the SIDS tends to be higher than for developing countries as a group. This has led to their exclusion from concessionary resources. Analysis of the economic performance of SIDS, reveals that current incomes are often facilitated by migrant remittances, preferential market access for some major exports and assistance from the international community. These sources are neither endogenous nor secure. Further, incomes of SIDS have generally been unstable over time as

natural disasters such as hurricanes and droughts often reduce incomes in SIDS dramatically - sometimes by 20 per cent to 30 per cent of Gross Domestic Product (GDP) in a single year. Difficulties in the international market for particular commodities, and recession in some developed countries which reduces migrant remittances have similar drastic effects. In any event the per capita incomes in SIDS are often magnified by the small size of the population.

The above factors, whilst not all peculiar to SIDS, tend to occur concurrently and more intensely in them. SIDS are thus less internally robust and resilient - economically and ecologically. They are simultaneously dependent on and vulnerable to external circumstances leading to a need for constant balancing and adjusting to situations over which they have little or no control.

The inter-relationships between SIDS and the international community are perhaps most obvious in the efforts of SIDS at sustainable development. Many of the threats to the sustainability of SIDS - global warming and its consequences, technological hazards, spills from hazardous and radioactive materials and wastes, over-exploitation of resources, including biodiversity and fish stocks, adverse terms of trade, outward migration of skills, foreign debt servicing and drug trafficking and abuse, have their roots in the international community.

Internal and regional organisation and international assistance and co-operation are thus critical in the process of sustainable development of SIDS.

IMPLEMENTATION ARRANGEMENTS AND SUPPORT REQUIREMENTS

Policies and programmatic actions for sustainable development require new participatory approaches in policy-making, administration and institution building at the national, sub-regional, regional and international levels.

There is a special role for major groups which includes women, youth, indigenous people, as well as the private sector, labour, and non-governmental organisations in the formulation of policies and the implementation of programmes for sustainable development. These groups impact on, and are directly affected by all efforts at, sustainable development.

The small size of island states could be a positive factor in the integration of environment and development as this relates to public participation. The small geographic space and generally close interactions allow manageable approaches.

At the National level sustainable development requires effective coordinating mechanisms between relevant ministries, departments and agencies, coherent programming of development objectives and priorities, controlling and programming of the use of resources, as well as commitment and institutional means to ensure that environmental considerations are taken fully into account in macro-economic policy formulation at the highest levels of decision-making.

The determination to pursue sustainable development in SIDS also provides new orientations and imperatives for regional co-operation. Limitations in administrative capacity, scarcity and under-utilisation of human, institutional and technical capacities,

scale considerations and other common problems, point to the need for joint and coordinated approaches by SIDS situated in the same sea or ocean and for exchange of experiences of SIDS in different regions.

Areas in which increased regional co-operation and support would be important include high-level training, research and development, the inventorising management and development of marine resources, and surveillance of EEZs, the protection of the common sea, development of information systems, the encouragement of investment and the mobilisation of resources. The regional initiatives are critical back-up, complementation and support to the national efforts.

The high degree of interaction of SIDS with and dependence on the international environment implies that international action can significantly affect the prospects for sustainable development in SIDS. There is need for co-ordination and for the recognition by the international community of the requirements of, and constraints to, sustainable development in SIDS.

Policy formulation and orientation at the global level must take account of the special requirements of SIDS if SIDS are to attain sustainable development. A particular weakness of SIDS however is their inability to ensure effective representation of their interests at the international level including at global conferences. The international community must therefore adopt institutional arrangements and mechanisms to ensure continuing attention to the special needs of SIDS for their effective representation in the international system.

The resource requirements - financial, technical and technological - for SIDS to attain sustainable development imply a level of flow from the international community. That community must therefore take into account broader-based indices more reflective of the special conditions and vulnerabilities of SIDS in assessing SIDS needs and their ability to support their own development. Premature graduation of SIDS from access to concessionary resources of official institutions such as the International Development Association, the International Bank for Reconstruction and Development (IBRD), the United Nations Development Programme (UNDP), and bilateral agencies could prove counter-productive to the efforts of SIDS to achieve sustainable development.

There is need for co-ordination of the support from the international community to facilitate the sustainable development of SIDS. International support should be co-ordinated with and be designed to bolster national and regional efforts and initiatives.

The Global Conference on the Sustainable Development of Small Island Developing States, while focusing on SIDS will involve the national, regional and international communities. It will thus provide a unique opportunity to develop mutually supportive and reinforcing policy approaches and programmatic actions at national, regional and international levels to facilitate sustainable development in SIDS.

Some of the programmatic actions to be taken at the national, regional and international levels in priority areas for the sustainable development of SIDS are outlined in the following sections. These are followed by some cross-sectoral actions.

MANAGEMENT OF ENVIRONMENTAL PROBLEMS OF SMALL ISLAND DEVELOPING STATES

1.1 Natural and Anthropogenic Environmental Disaster Preparedness

National Policies and Measures

- Establish and strengthen, where appropriate, integrated disaster management agencies.

- Formulate comprehensive disaster mitigation, preparedness, response mechanisms and develop or strengthen early warning systems. These should take into account the relationship between environmental management and disaster mitigation.

- Develop industrial disaster management plans including off-site disaster plans; and involve local communities, NGOs and the private sector in the development of these plans.

- Develop the human resource scientific and technological capability of hazard mapping and data and risk analysis.

- Improve the rapid dissemination of information and warnings.

- Incorporate appropriate elements of disaster management into the education curricula at all levels and in relevant professional training programmes.

- Incorporate awareness and preparedness for emergencies at the local level (APELL) in national disaster plans.

- Establish a "National Disaster Emergency Fund" with joint private and public sector support, for areas where insurance is not available in the commercial market.

- Develop and enforce building codes and standards and physical planning support activities such as hazard mapping, bearing in mind the needs of the poor.

- Assess potential sources of man-made disasters, in order to assist contingency planning on a national and regional basis.

Regional Initiatives

- Establish and strengthen, where appropriate, regional disaster mitigation and preparedness management agencies, measures and programmes. Such agencies should have a co-ordinating responsibility for a wide range of disasters including industrial disasters and oil spills.

- Establish and strengthen, where appropriate, mechanisms for the sharing of experience, information, resources and expertise with regard to disaster preparedness, prevention, mitigation, and response between SIDS in different regions.

- Support the operation of a "National Disaster Emergency Fund" and the enactment of standard building codes, and legislation.

- Encourage the Regions as part of Agenda 21, and within the framework of the United Nations Disaster Relief Organisation (UNDRO) to aim for all major public and private sector entities to have written disaster recovery plans for their operations by the year 2000.

- Promote inter-agency collaboration in establishing and utilising models for disaster management.

- Increase access to telecommunication links and satellite facilities for disaster monitoring, assessment and information exchange.

- Establish regional mechanisms and communication systems for rapid response to disasters.

International Initiatives

- Support the development of the human resource, scientific and technological capability for hazard mapping and data and risk analysis.

- Support SIDS in establishing institutional mechanisms for disaster planning, management and response (short term and long term).

- Facilitate the free and rapid exchange of data at the national, regional and global levels for monitoring and diagnosing meteorological, hydrological and oceanographic information.

- Facilitate easier access to telecommunications and satellite technology for disaster mitigation, planning, response, and assessment.

- Facilitate the development and/or strengthening of early warning systems.

- Give support to "National Disaster Emergency Funds" and the further development of building codes and legislation.

1.2 CLIMATE CHANGE, SEA LEVEL RISE AND CLIMATE VARIABILITY

National Policies and Measures

- Ratify, as a matter of early importance, the Framework Convention on Climate Change.

- Assess the socio-economic implications of the impact of climate change, climate variability and sea level rise on SIDS.

- Map areas vulnerable to sea level rise and develop computer based information data bases, covering the results of surveys, assessments and observations.

- Formulate comprehensive adjustment and mitigation measures for sea level rise within the framework of integrated coastal zone management and estimate the cost of implementation.

- Implement systems for systematic and continuous research, assessment and monitoring of the effects of climate change and its impacts.

- Participate actively in the work of the IPCC including work impacting on sea level rise, forecasting of tropical storms/hurricanes and change in rainfall intensity.

- Strengthen human resource capability in fields such as remote sensing and mathematical modelling.

- Improve public awareness and understanding of the potential impacts of climate change.

Regional Initiatives

- Create and/or strengthen institutional networks to monitor climate variability, climate change and sea level rise and impacts on SIDS.

- Establish cooperation frameworks, training, technology transfer, surveillance of climate change and the sharing of experiences to assist in the preparedness response by countries in response to eventual climate changes.

- Intensify studies on early warning systems for countries to respond to climate change events.

- Promote at the international level, specific initiatives to develop climate change and climate variability models in tropical areas.

- Develop regional or sub-regional projects, as appropriate, focussing on climate variability and/or climate change with respect to:

    - improved prediction of extreme events, e.g. floods and droughts; and

    - the effects of El Niño Southern Oscillation on the frequency of hurricanes.

International Initiatives

- Assist SIDS in assessing the impact of potential sea level rise including response, adjustment and adaptation strategies and their financial implications.

- Provide improved access to financial resources for the development and implementation of response adaptation strategies recognising the specific vulnerabilities and disproportionate costs borne by small island developing states.

- Support the implementation of systems for systematic and continuous research, assessment and monitoring of the effects of climate change and its impacts.

- Support multi-disciplinary research and monitoring programmes to further substantiate the role of the ocean in world climate.

- Promote and support the collection and exchange of tidal and other relevant information of SIDS and low-lying coastal developing states in relation to climate change including their participation in the Global Level of Sea Surface (GLOSS) Programme of the IOC.

- Support programmes to monitor the impact of salt water/fresh water interface, including that resulting from sea level rise on the fresh water resources of SIDS and low-lying coastal developing states.

- Facilitate effective precautionary and response strategies to climate change.

- Support affected SIDS in the context of international efforts to combat desertification and drought.

1.3 POLLUTION AND WASTE MANAGEMENT

1.3.1 LAND-BASED SOURCES OF POLLUTION

Categories of Land-based sources of waste and pollution identified were :

A. Liquid

- Domestic
- Industrial
- Agricultural

B. Solid

- Municipal/Domestic
- Industrial/Commercial
- Agricultural

C. Hospital/Infectious

D. Hazardous/Toxic

E. Soil erosion/Surface runoff

National Policies and Measures

- Introduce the use of cleaner technologies and on-site treatment of waste for industries and establish waste discharge and environmental quality standards.

- Integrate waste management and pollution control requirements into land-use planning as a tool for sustainable development.

- Establish and enforce regulatory control of pollution during the construction and operational phases of coastal developments.

- Formulate and implement public education programmes (formal and informal) to complement the thrust for reducing and re-using waste.

- Develop emission, discharge, and environmental quality standards.

- Develop and implement a policy, relevant legislation and guidelines for the selling, storage and use of pesticides and herbicides.

- Ensure greater control of agricultural activities. There should be practice of re-afforestation or re-vegetation where applicable. Land management practices which do not contribute to soil erosion should be utilized and promoted. Control of the use and storage of pesticides and fertilizers should be established, along with measures for the control of animal waste disposal and run-off.

- Determine the appropriate combination of sewage management technologies and the areas of the islands to which they may be applied.

- Evaluate, examine and establish methods of solid waste disposal, with a view to utilizing the most appropriate solid waste disposal technologies.

- Develop comprehensive national solid waste management strategies, including options for effective collection, transport and disposal, and guidelines on reducing, recycling and reusing waste.

- Enact environmental legislation covering all aspects of waste management and minimisation.

- Establish permit and licensing systems for design, construction, operation and maintenance of waste-water treatment plants.

- Identify and specify which agency or department is responsible for specific waste management and pollution control activities.

- Determine institutional capabilities at:

    - planning level (e.g. land use and physical planning)
    - design level
    - construction level
    - operation and maintenance level
    - monitoring level

- Assess, mobilise and develop human, financial and material resources for improved solid waste management.

- Develop information systems and baseline data for waste management and pollution control.

- Develop cross-sectoral and integrated frameworks of cooperation, including inter-ministerial and inter-departmental coordination and cooperation.

- Integrate responsibilities with relevant expertise.

- Prohibit the disposal of domestic waste water and industrial wastes in beaches and other shallow waters to protect public health and integrity of the ecosystem. Establish procedures for the proper construction, design and operation of marine waste water outfalls utilising EIA, current and other oceanographic studies so that both public health and the ecosystems are protected.

- Encourage water conservation and the use of effluent re-use options, which may include toilet flushing, sprinkler, drip and sub-surface irrigation. This should receive high priority in order to reduce the stress on the fresh water resources and to reduce environmental pollution.

- Introduce or develop methods for segregation, treatment and safe disposal of hospital, medical and infectious wastes, including waste water.

- Implement adequate provisions for the final disposal of sludge. Encourage the re-use of treated and/or dried sludge for agricultural purposes, taking into account safety and health considerations, after the assessment of the suitability of the sludge and the carrying capacity of the soil.

- Develop comprehensive national solid waste management strategies, including options for effective collection, transport and disposal, and guidelines on reducing, recycling and re-use of waste.

- Ensure that adequate consideration is given to island issues in the efforts underway at the regional and international levels on approaches to land-based sources of marine pollution.

- Tighten quality control for sewage treatment facilities and increase penalties for offenders.

- Improve disposal of wastes including pre-treatment of industrial wastes, where appropriate.

Regional Initiatives

- Support the strengthening of existing institutions to provide support to the governments and industry in the development and/or utilization of cleaner production technologies and in the handling, treatment and disposal of harzardous wastes.

- Establish regional training programmes.

- Promote the establishment of regional systems, including hubs, for the treatment, disposal and recycling of domestically generated wastes.

- Ensure that adequate consideration is given to island issues in the effort underway to devise regional approaches to land based sources of marine pollution under the auspices of the Caribbean Regional Seas Programme.

- Develop regional strategies for assistance to prepare EIA's, data surveys and training.

- Identify sources of technical and financial assistance/cooperation which may be mobilised through the existing regional organisations.

- Establish mechanisms for the exchange of information relating to solid waste management in island eco-systems.

International Initiatives

- Promote and enhance international cooperation in the establishment of waste-management facilities as a component of international investment projects, whether funded by multi-lateral or private sources.

- Identify criteria for development assistance and technical assistance projects, including agriculture and sewage-related projects, for the purpose of mobilizing resources from individual countries, multi-lateral organizations or international financial institutions to address the protection of the marine environment from land-based activities.

- Promote the control of the use of toxic chemicals in the context of international financing for agricultural projects.

- Identify sources of technical and financial assistance/cooperation which may be mobilised through existing international organisations.

1.3.2 **MARINE SOURCES OF POLLUTION**

1.3.2.1 **Ship/Vessel Generated Wastes**

National Policies and Measures

- Establish appropriate mechanisms to minimise the transport of health hazardous materials and waste including ship-generated wastes.

- Establish waste reception facilities at sea ports in accordance with Annex 5 MARPOL 73/78 thereby giving practical effect to the designation of the Caribbean Sea as a Special Area. This must be

done in conjunction with the establishment of adequate waste treatment and disposal facilities, while considering the constraints to sustainability posed by the acceptance of such waste.

Regional Initiatives

- Establish a systematic observation system to measure marine environmental quality including causes and effects of marine degradation as a basis for management.

- Establish a clearing house for information on marine pollution control including processes and technologies to address marine pollution control and support their transfer to SIDS.

- Examine ways available for the resolution of disputes regarding the impacts of inappropriate waste disposal practices affecting islands, and encourage a collaborative approach in respect of international compensation and penalties in case of breaches of international agreements.

- Establish mechanisms for enforcement of compensation and penalties in cases of breach of international agreements.

- Establish regional mechanisms to monitor disposal at sea of ship generated waste.

International Initiatives

- Support the establishment of port reception facilities, for the collection of categories of wastes defined under MARPOL 73/78 as well as necessary treatment and final disposal facilities and promote the establishment of small scale facilities, in marinas and fishing harbours, mindful of the constraints of sustainability facing SIDS.

- Establish mechanisms to ensure Governments are fully apprised of their international obligations and rights.

- Assess the need for stricter international regulations to further reduce the risk of accidents and pollution from cargo ships (including bulk carriers).

- Assess the state of marine pollution in areas of congested shipping, with a view to ensuring compliance with generally accepted international regulations. Attention is drawn to the provisions of Part II of the United Nations Convention on the Law of the Sea, which deals with illegal discharges from ships.

1.3.2.2 **Ocean Dumping**

Regional Initiatives

- Establish mechanisms to monitor ocean dumping activities.

- Support wider ratification, and implementation of, and participation in relevant Conventions on dumping at sea, including early conclusion of a future strategy for the London Dumping Convention.

- Encourage parties to relevant conventions to take appropriate steps to stop ocean dumping and incineration of hazardous substances.

1.3.2.3 **Oil and Chemical Spill Contingency**

National Policies and Measures

- Formulate national oil spill contingency plans consistent with each country's national priorities and in accordance with relevant, regional and international legal instruments. Attention is drawn to the Convention on Oil Pollution Preparedness, Response and Co-operation, which addresses, **inter alia**, the development of contingency plans at the national, regional and international levels, as appropriate, including provision of oil spill response material and training of personnel, including its possible extension to chemical spill response.

- Formulate national risk assessments and sensitivity mapping for oil spill contingency planning.

- Establish national alerting and response mechanisms to complement regional mechanisms for rapid response to oil spills.

- Adopt a comprehensive regime of protection from pollution liability, compensation and response and contingency planning with special reference to relevant international conventions.

Regional Initiatives

- Establish or enhance, where appropriate, regional alerting and response centres to facilitate rapid response to oil spills. Such centres should be supported by a network of national response mechanisms. The activities of such centres could include among other things an information clearing house, training, possible stock piling of equipment and assistance in the event of an oil spill.

- Formulate subregional and regional contingency plans for SIDS including options for oil spill response techniques (e.g. dispersants).

- Formulate regional and sub-regional risk assessments and sensitivity mapping for oil spill contingency planning.

- Establish or enhance, where appropriate, regional communication and information networks.

- Establish or enhance, where appropriate, regional surveillance and monitoring mechanisms.

International Initiatives

- Intensify international cooperation to strengthen or establish, where necessary, regional oil/chemical spill response centres and/or, as appropriate, mechanisms in cooperation with relevant subregional, regional or global intergovernmental organizations and, where appropriate, industry-based organizations.

- Strengthen coordination between relevant regional and international organisations in oil spill contingency planning and response. This should be integrally linked to the activities of the regional alerting and response mechanisms.

- Gain recognition by the international community for the constraining factors of SIDS ratification of appropriate international conventions, and devising mechanisms whereby such ratification could be made possible.

- Support the enhancement, where appropriate, of regional alerting and response mechanisms, the formulation of national and regional oil spill contingency plans, risk assessment and sensitivity

mapping, establishment of communication and information networks, databases and regional surveillance and monitoring mechanisms.

- Support the development of national disaster planning agencies and planning and mitigation for disasters.

1.3.3 **TRANSBOUNDARY MOVEMENT OF HAZARDOUS AND RADIOACTIVE WASTE OR MATERIALS**

National Policies and Measures

- Establish programmes of public information dissemination on the transboundary movement of hazardous and radioactive waste or materials.

- Establish an effective monitoring mechanism for transboundary movement of hazardous and radioactive waste and materials consistent with national priorities.

- Upgrade existing legal instruments at the national level and seek to modify international legal conventions so as to remove weaknesses.

Regional Initiatives

- Establish mechanisms for the representation of the interests of SIDS in appropriate international forums.

- Establish regional monitoring, alerting, communication and information networks.

- Formulate and elaborate regional protocols under the Cartagena Convention and other relevant Conventions on the transboundary movement of hazardous and radioactive waste.

International Initiatives

- Identify the constraints to the monitoring of the movement of hazardous and radioactive waste or materials by SIDS, and seek international support to minimise the risks arising from such movement.

- Support ongoing activity within relevant international organisations regarding the development of an international regime governing the transportation of hazardous and toxic (noxious) substances carried by ships.

- Enforce, or gain respect for, the rights of SIDS to ban, and/or restrict the transboundary movement of hazardous and radioactive waste and materials in territories under their jurisdiction.

- Initiate, where appropriate, a mechanism for obtaining all relevant information regarding vessels carrying such waste and materials including ship reporting and training, taking into account existing international conventions and treaties.

- Examine existing compensation funds to determine whether they would be appropriate in respect of pollution damage caused by substances other than oil.

1.3.4 **AIR POLLUTION**

National Policies and Measures

- Develop and implement air pollution monitoring and control programmes, taking into account environmental factors, indoor air pollution, settlement patterns and particularly sensitive areas such as health and tourism.

1.3.5 **TOXIC AND HAZARDOUS MATERIALS AND WASTE**

National Policies and Measures

- Develop a toxic and hazardous materials management programme which gives recognition to this problem. Although most of the material is imported the quantity being generated within the region is growing. Items to be addressed should include:

  - Establishment of standards for the manufacturing, handling, transport, utilisation and final disposal of the material and the containers;

  - Introduction of a material inventory approach for toxic and hazardous materials manufacture;

- Adoption of a cradle to grave approach in the management of toxic and hazardous materials and waste;

- Implementation of a public education programme dealing with toxic and hazardous waste and materials including household hazardous and toxic materials;

- Establishment of management systems and separate disposal facilities for toxic/hazardous materials;

Regional Initiatives

- Develop regional strategies for assistance to prepare EIA's data surveys and training, for the establishment and proper management of toxic/hazardous waste facilities.

- Establish regional registers of toxic/hazardous materials which are in use in the region together with risk assessment.

- Develop regional policies to prohibit the importation of hazardous/toxic waste for either further processing or final disposal.

2. INTEGRATED MANAGEMENT OF NATURAL RESOURCES

2.1 COASTAL ZONE MANAGEMENT AND MARINE RESOURCES

National Policies and Measures

Given the inseparable relationships between the coastal zone and inland areas, coastal zone management must be approached in an integrated manner, and include the following:

- An integrated marine and coastal zone policy which takes into account those inland activities which also impact on the marine and coastal environment including, e.g. ground water and wetlands, and the development of intersectoral plans and programmes in accordance with such a policy.

- Promotion of the implementation of intersectoral plans and programmes through enhanced coordination between agencies and/or sectors at the national and regional levels.

- Development and/or strengthening, as appropriate of the capabilities of research institutions to support development and preparation of intersectoral plans.

- Design of comprehensive monitoring programmes of coastal and marine resources including wetlands to determine shoreline stability and ecosystem integrity to adequately evaluate and decide on acceptable coastal activities and resource utilisation.

- Formulation of policies aimed at restoring/rehabilitating already degraded environments and biological resources.

- formulation of policies or programmes to avoid irrational and/or exhaustive exploitation of coastal sands, thereby reducing the rate of degradation of beaches/leisure spots.

- Seek to make integrated coastal zone management policies a part of the overall national development planning process.

- Promote collaboration among government, local communities, non-governmental organisations and private sector institutions in establishing and managing marine and coastal areas and wetlands.

- Develop a basic policy and capability for the sustainable utilization and exploitiation of living and non-living resources.

- Integrate management strategies for the EEZ into development plans.

Regional Initiatives

- Promotion of the development of intersectoral programmes at the regional level, through enhanced coordination between regional and international agencies.

- Development and/or strengthening, as appropriate of the capabilities of regional institutions to support development and implementation of these plans.

- Promote joint regional efforts to find innovative ways of management of the EEZ resources and specifically fisheries (pooling capabilities).

- Establish common policies on migratory fish stocks.

- Develop programmes designed to upgrade the negotiating and other skills in all aspects relating to the delimitation and exploitation of the maritime areas of SIDS.

- Develop regional capabilities for the effective surveillance and monitoring of vessel compliance and develop regional mechanisms for enforcing the rules and regulations pertaining to sustainable management of maritime areas of SIDS.

- Harmonize policies and strategies for coordination of sustainable management and utilization of coastal and marine resources, including highly migratory fish stocks.

- Undertake joint/regional efforts to effectively monitor coastlines territorial waters and EEZs; monitoring should include biological and physical aspects and activities such as damaging and non-sustainable fishing practices.

International Initiatives

- Assist SIDS in the management of their coastal and marine resources by supporting investment projects (i.e. coastal zone management plans, coastal conservation studies etc.).

- Assist and support SIDS in establishing and strengthening national and regional capabilities for effective surveillance and monitoring of activities within the EEZ; the establishment of regional fishing enterprises; information clearing houses for the exchange of information inventory of the resource base; modalities for developing joint management strategies for the management of the EEZ and the strengthening of regional centres in marine science.

- Establish a Marine Utilization Technical Assistance Mechanism. Such a mechanism should be orientated towards assisting SIDS in the effective utilization of the resources in the EEZ, the development of aquaculture training sites, etc.

- Support cooperation programmes aimed at upgrading negotiating and other skills in all aspects relating to the delimitation and exploitation of the maritime areas of SIDS.

- Facilitate and support the effective monitoring of EEZs, which should include biological and physical aspects and activities such as damaging and non-sustainable fishing practices.

2.2 ENERGY RESOURCES

National Policies and Measures

- Promote mechanisms for the development of technologies to conserve existing energy sources along with practices and guidelines to minimise adverse effects on the environment.

- Promote the more efficient use of non-renewable energy resources.

- Carry out research to assist in the medium- and long-term development of non-renewable energy resources.

- Strengthen research capabilities and develop technologies to encourage the efficient utilization of alternative fuels and fuel products, such as compressed natural gas and methanol that minimize adverse effects of climate change.

- Establish and/or strengthen where appropriate research capabilities in the development of new and renewable sources of energy including wind, solar, geothermal, hydroelectric, wave and biomass.

- Provide appropriate economic incentives for the development and utilisation of renewable energy sources.

Regional Initiatives

- Encourage, through appropriate economic incentives, the use of new and renewable sources of energy, utilizing appropriate technologies.

- Follow the progress of Ocean Thermal Energy Conversion (OTEC) technology and encourage its use in SIDS.

- Encourage regional initiatives for establishing or strengthening research capabilities in the development of new and renewable sources of energy including wind, solar, geothermal, hydroelectric, wave and biomass.

International Initiatives

- Support the more efficient use of non-renewable energy resources.

- Support national and regional programmes for establishing or strengthening research capabilities in the development of new and renewable sources of energy including wind, solar, geothermal, hydroelectric, wave and biomass.

- Establish databases to disseminate information on experiences in the use of new and renewable sources of energy as well as on efficient use of non-renewable energy sources.

- Support efforts for training of personnel in the development and use of new and renewable sources of energy as well as the efficient use of non-renewable energy sources.

- Support demonstration projects which would be used to test technologies on new and renewable sources of energy.

2.3. TOURISM

National Policies and Measures

- Formulate integrated, coherent policies that take into account the overall impact of tourism on the economy, the environment and society, paying close attention to the long-term perspectives of various developmental sectors.

- Develop a framework for standards, regulations and legislation for the long-term sustainable development of tourism. This should take into account the fragility of ecosystems, and the increased impact of tourism on the population, especially in urban settlements and infrastructure.

- Encourage the use of tourism as an engine for the development of other economic sectors such as construction, agriculture, manufacturing, transportation, culture and human resources.

- Promote sustainable development and management of eco-tourism by careful balancing of the economic benefits with adequate measures to minimize potential adverse impact of tourism on the environment.

Regional Initiatives

- Ensure that the component of sustainability is taken into account in tourism co-operation schemes at the regional level, including harmonisation of standards and regulations.

- Encourage the assessment and development of potential complementarities among countries of the region in order to promote an integrated approach of using tourism to support other economic sectors.

- Establish or strengthen regional mechanisms for the exchange of information in the development of a safe and sustainable tourism sector, using as appropriate the capacities of regional tourism organisations.

- Promote inter-sectoral linkages across countries in the region to enhance the economic benefits of tourism.

International Initiatives

- Facilitate efforts at the national and regional levels to assess the overall impact of the economic, social and ecological aspects of tourism and develop studies of the long-term trends of these aspects, to achieve:

  - a better assessment of ecological degradation and social dynamics caused by higher levels of tourist flows;

  - better assessment of levels of infrastructure required to cater for varying seasonal tourism needs.

- Facilitiate national and regional efforts at enhancing inter-sectoral linkages from tourism.

2.4 FRESH WATER RESOURCES

National Policies and Measures

- Formulate national plans and investment strategies for water resources and incorporate water resources planning into National Integrated Development Plans.

- Develop comprehensive water resources databases and prepare forecasting models for water management, planning and utilization to ensure efficient allocation.

- Protect watershed areas through management of natural forests, reafforestation programmes (using appropriate indigenous species mixes where possible) and proper land use planning.

- Assess the cost of developing alternative sources of water supply.

- Develop and strengthen analytical and monitoring capabilities (e.g. equipment, laboratories and the human resource) and management capability for water resources assessment and protection.

- Establish or strengthen, as appropriate, procedures to respond to and to monitor impact of natural and man-induced hazards, including the impact of climate change particularly drought and sea level rise on water resources.

- Establish or strengthen, as appropriate, a legal framework for the use, conservation and protection of fresh water resources which would include standards for the prevention of pollution of water resources.

- Establish and strengthen, as appropriate, acceptable quality standards for water.

- Develop, where appropriate, desalination programmes to supplement fresh water supplies.

- Manage existing forests for optimum production and protection of fresh water resources.

- Develop national water conservation policies and plans.

Regional Initiatives

- Develop and/or strengthen, as appropriate initiatives for regional cooperation in training and research in the area of fresh water resources.

- Develop programmes to assist governments in the implementation of national integrated water resources development to:

  - promote effective measures for water conservation and for the protection and rehabilitation of watersheds;

  - establish programmes for the protection of ground water aquifers and recharge areas;

  - establish training and awareness campaigns to build up endogenous capacity in water conservation and assist in the monitoring of water quality;

- identify and strengthen existing regional centres in SIDS with the aim of promoting the introduction of new and sound technologies and assessment methods in the area of planning, management and conservation of fresh water resources including desalination.

- Harmonize regional water quality standards

International Initiatives

- Support SIDS in -

  - examining options for water supply, including desalination;

  - protecting watersheds including reafforestation programmes; and

  - strengthening existing programmes and institutions for water resources monitoring and assessment inclusive of water quality and analytical capabilities.

- Establish programmes aimed at assessing the impact of climate change on fresh water resources to include:

  - techniques and methodologies for assessing the potential adverse impact;

- socio-economic impacts of water contamination and response and mitigation measures;

- Provide technical assistance to review international water quality standards for adoption and adaptation.

- Establish appropriate funding mechanisms to facilitate the transfer and sharing of environmental sound technology for integrated fresh water resource management and human resource and management capabilities.

2.5 LAND RESOURCES AND HUMAN SETTLEMENTS

National Policies and Measures

- Review existing physical planning guidelines with a view to encouraging designs appropriate to small islands with limited land space resources.

- Prepare and/or review land use plans with a view to formulating comprehensive land use plans incorporating the economic, environmental, social and sectoral dimensions.

- Establish an appropriate legal framework for land resources management.

- Develop and improve national databases for land resources management.

- Develop and implement national land/geographic information systems.

- Develop estimates of economic value of land resources including as far as possible ecological and environmental value and utilize this information in planning and decision-making on development.

- Conduct analyses of land capabilities and carrying capacity of land resources.

- Implement training in resource planning and management.

- Improve the availability of shelter and the economic and environmental quality of human settlement in accordance with Chapter 7 of Agenda 21.

- Identify spontaneous settlements, and while taking action to contain them, develop plans for their rationalisation, which focus on establishing a quality of life that is sustainable from an economic, social, cultural and environmental perspective.

- Support the negotiations for a Convention on Desertification and Drought.

Regional Initiatives

- Undertake programmes of data collection within the region to permit exchange of information.

- Share knowledge and expertise regionally in support of national efforts.

- Develop common methodology and analytical tools and where possible harmonise legislation but, as far as possible, base national regulations as standards on local circumstances.

- Cooperate in improving the availability of shelter and the economic and environmental quality of human settlements in accordance with Chapter 7 of Agenda 21.

International Initiatives

- Provide technical assistance to support national and regional efforts.

- Support the improvement of the availability of shelter and the economic and environmental quality of human settlements in accordance with Chapter 7 of Agenda 21.

- Take into consideration special concerns of SIDS in the negotiations for a Convention on Desertification and Drought.

2.6 BIOLOGICAL RESOURCES

National Policies and Measures

- Formulate and utilise strategies for the conservation and sustainable use of biodiversity, integrating comprehensively issues such as -
  - sustainable agriculture;
  - land and forest resources, including wetlands;
  - sustainable tourism;
  - socio-economic and human impact on biodiversity.
- Extend or incorporate the principles of the protection and management of biodiversity in all relevant planning spheres and in physical, territorial and socio-economic assessments.
- Formulate and develop programmes to initiate or continue studies and research on biological resources and their intrinsic socio-economic and cultural values, including biotechnology.
- Provide and, where appropriate, develop the capacity for research and management of biodiversity resources.

- Generate and maintain buffer stocks of biogenetic resources for re-introduction into the environment specially in the case of post-disaster restoration and rehabilitation.

- Identify national priorities to strengthen the role of natural systems, including national parks and other protected areas, in order to expand the catalytic functions of these systems for the enhancement of the scientific and technical knowledge of biological resources and the testing of sustainable development options for critical or degraded habitats.

- Ratify the relevant Conventions on biodiversity.

- Promote the use of natural products and services to optimise the sustainable management of biodiversity and properly value biological resources.

Regional Initiatives

- Co-operate in the use of alternative agricultural methods which will incorporate ecological and other biological considerations.

- Promote regional studies and research on the socio-economic and cultural value of biodiversity with the participation of existing scientific

institutions supported by relevant international agencies and NGOs. These studies should address the economic aspects of biodiversity, the access to biotechnology and Intellectual Property Rights.

- Identify and quantify keystone species and habitat characteristics in the development of vulnerability index.

- Assist governments in conducting surveys of biodiversity and in establishing relevant databases.

- Promote the establishment of regional gene bank centres for research seeking the development and introduction of more resistant and productive varieties of species and provide the appropriate legal and technical procedures for the use of these biological resources.

- Develop a strong regional capability for the co-ordination of information exchange, training and technical assistance in support of national efforts.

- Select and strengthen already existing regional scientific institutions which can operate as reference centres for problems related to the conservation and sustainable management of biodiversity including the critical situation of

some ecosystems. These centres should also serve to promote regional and inter-regional co-operation among SIDS in respect to relevant information, the introduction and assessment of new, sound and highly advanced technologies in these fields, capacity building and formation of human resources as well as appropriate channels for sharing experiences.

- With the financial support of the relevant international agencies, including NGO's using the appropriate provision of legal instruments, use present available capacity in SIDS and select regional institutions in the area of genetic engineering and biotechnology with, **inter alia**, the following objectives:

  - to promote and diffuse the management of these techniques among SIDS;

  - to meet capacity building needs of SIDS in these areas;

  - to train personnel;

  - to serve as a regional reference for biotechnology assessment and sharing of information and experiences.

International Initiatives

- Improve access to financial and technical resources for the conservation of biological diversity taking into account the importance of both conservation and sustainable use of biological diversity in SIDS.

- Improve access to environmentally sound bio-technology including know-how and delivery mechanisms.

- Provide funds for basis institutional and logistic support for the conservation and management of bio-diversity resources.

- Relevant international organisations, agencies and programmes of the UN system, as well as related NGOs, should examine in their respective areas of competence, ways and means to support the identified regional SIDS centres or programmes in these fields.

- Request relevant international organisations, programmes and agencies of the UN systems to examine in their respective areas of competence the extent to which their existing programmes take into account the special situation and needs of SIDS in the sphere of conservation and sustainable use of biodiversity and bio-technology.

3. CAPACITY BUILDING

3.1 NATIONAL INSTITUTIONS, ADMINISTRATIVE AND IMPLEMENTATIVE CAPACITIES

REGIONAL INSTITUTIONS, REGIONAL IMPLEMENTATION, TECHNICAL COOPERATION

REGIONAL TRANSPORT AND COMMUNICATIONS SYSTEMS

National Policies and Measures

- Rationalise the national institutional and administrative arrangements for environment and development in such a way so as to facilitate an integrated approach to environmental management at the political, technical and administrative levels.

- Establish cross-sectoral/interministerial and inter-agency committees at different levels to deal in a coordinated way with the many issues of environment and sustainable development. Such groups should address specific issues and objectives and hence their composition may vary.

- Encourage the development of national approaches that facilitate the involvement of NGOs, PVOs, women, youth and other groups in capacity-building programmes and projects.

- Encourage the development of sustainable development policy documents, action plans and strategies at the national level, involving the public and private sectors, and NGOs.

- Utilise funding mechanisms including UNDP Capacity 21 Funds, for developing and implementing projects for enhancing institutional analysis and capacity building.

- Review and harmonise existing legislation, which **inter alia** should:

  - facilitate the integration of the environment dimension into the development planning process;

  - enhance and render enforcement more effective;

  - minimise duplication; and

  - strengthen the monitoring and enforcement capabilities of agencies and institutions enabling **inter alia**, the application of a cross-sectoral approach in the conservation of the environment, including the expansion of the number of trained personnel.

- Develop and/or strengthen, where appropriate easily accessible databases on existing national legislation and international treaties.

Regional Initiatives

- Develop a "Small Island Developing States Technical Assistance Programme" (SIDS/TAP) to support sustainable development in SIDS worldwide. Each region could as a first step develop supporting mechanisms at the national and sub-regional levels. The purpose of (SIDS/TAP) would be to facilitate inter- and intra-regional collaboration at the administrative, and technical levels between SIDS.

- Encourage the development of regional approaches that facilitate the involvement of NGOs, PVOs, women, youth and other groups in capacity-building programmes and projects.

- Establish and where appropriate, support Regional Sustainable Development Centres (RSDC) to facilitate the sustainable development of SIDS in the areas of research, training, the development of endogenous technology, transfer of technology and the provision of legal and technical advice, taking into account the work of existing relevant institutions, including universities. Such regional centres could also be charged with facilitating and implementing the proposed SIDS Technical Assistance Programme.

- Establish mechanisms for sharing experiences among small island states, including sharing of information on small scale successes and failures of certain mechanisms.

3.2 SCIENCE AND TECHNOLOGY INCLUDING INDIGENOUS KNOWLEDGE

National Policies and Measures

- Develop national scientific and technological capability for environmental impact assessment.

- Formulate national strategies to facilitate the integration of science and technology including environmentally sound technologies into sustainable development plans, so that the science and technology needs of every sector are clearly identified and budgeted for.

- Develop policies on science and technology which complement and support development initiatives.

- Encourage the use of fiscal instruments to promote sustainable development including the development and use of environmentally sound technologies.

- Develop and/or strengthen, where appropriate, centres for accessing technological information, and technical extension services for the assessment of technology options.

- Develop endogenous capability in key technologies which are necessary to support sustainable development, for example:

  - Encourage the use of alternative building materials in the construction industry;

  - Develop and encourage recycling technologies to reduce waste generation;

  - Develop affordable sewage disposal systems;

  - Develop alternative energy sources;

  - Encourage research into ethnobotany, and tap indigenous knowledge and processes to develop the medicinal uses of plants;

  - Encourage the collection of primary and secondary information on biological resources and the systematic categorisation of information at the local and rural level.

- Encourage and nurture the development of a science and technology culture in SIDS.

- Refine analytical tools including national income accounting in order to properly value the use and degradation of natural resources for example, forests and wetlands.

- Develop environmental databases such as geographical information systems, on environmental parameters and indicators.

Regional Initiatives

- Formulate policies and incentives designed to encourage private sector participation and investment in the development of regional capability in environmentaly sound technologies necessary to support the sustainable development of SIDS.

- Develop and strengthen Regional Ocean Sciences Networks with particular reference to data collection and dissemination of information relevant to small island developing states.

- Encourage the standardisation of analytical methods and measures as well as scientific inter-calibration exercises in order to facilitate the exchange of reliable data/information regarding **inter alia,** the monitoring of living organisms and levels of chemical pollutants. Such harmonisation of methodologies should assist SIDS in meeting standards set by the international community with regard to the environment.

International Initiatives

- Establish joint ventures aimed at facilitating the access to, and the transfer and development of environmentally sound technologies.

- Establish funding for a technical assistance programme in science and technology to enable exchange of ideas, information and to facilitate joint projects.

- Develop a programme of assistance to national governments to help establish structures that can promote science and technology at the national level:

    - to facilitate the incorporation of science and technology into sustainable development plans; to promote and assist research in the important sectors of the economy;

    - to promote collaborative work and cross sectoral integration and collaboration in science and technology;

    - to assess and evaluate the effects of imported technology on the society.

- Strengthen co-ordination and networking of the various national centres, regional systems and international organisations working in areas of science and technology, to facilitate information flow, database creation and access and greater collaboration of programmes.

3.3 HUMAN RESOURCE DEVELOPMENT INCLUDING EDUCATION, TRAINING, HEALTH AND POPULATION

National Policies and Measures

- Incorporate the principle of sustainable development into the mandates and policies of the sectoral line ministries, and upgrade human resource capability to assess the environmental impact of proposed policies and public and private investment.

- Develop within the education system a stronger orientation towards the application of technology.

- Develop national and regional public programmes including distance learning.

- Infuse sustainable development ideas into educational curricula at all levels.

- Enhance the capacity to access and adapt sustainable development education materials produced in relevant centres in other countries.

- Give priority attention to improvement and extension of basic infrastructural services for example, potable water, sewage treatment and disposal in the interest of the health and well being of the population which is the central issue in sustainable development.

- Promote awareness through organised community groups of the consequences of action that may be harmful to resources and the environment, particularly those practices which are related to health and social well-being.

- Encourage national efforts to incorporate environmental considerations into population policy making and implementation and to harmonise and integrate population, land use and environmental policies into development planning.

- Promote awareness of linkages between population and environmental variables.

- Recognise and support programmes to strengthen the environmental health sector.

Regional Initiatives

- Introduce, develop and/or access inter-disciplinary training with respect to environmental sciences focusing on climate change and related socio-economic and ecological disciplines at the tertiary level at regional or international institutions.

- Expose regional scientists to training through attachments to Research and Development institutions in the developed countries, to complement Technical Cooperation among Developing Countries (TCDC) Programmes.

- Encourage studies to look at the effects of population loss, growth and distribution in the Small Island States.

- Establish regional education programmes at all levels, primary, secondary, and tertiary, to popularise science and technology and develop a science and technology culture.

International Initiatives

- Facilitate and enhance the capacity of SIDS to access, adapt and use the full range of learning materials in support of sustainable development education.

- Support SIDS in the preparatory process leading to the International Conference on Population and Development.

3.4 **FINANCE INCLUDING INSURANCE**

National Policies and Measures

- Strengthen the national capabilities to identify, influence and mobilise financial resources from regional and international sources.

- Establish mechanisms for the involvement of the wider public including the private sector in the funding of projects for sustainable development.

- Establish a regime of incentives for investment in the funding of sustainable development nationally and regionally, utilizing creative and innovative measures, for example, the provision of tax breaks for investors.

- Establish provisions requiring investors to include costs of environment measures and tools in capital projects, and to implement measures for the reduction of waste and pollution.

- Use revenue-earning approaches to projects requiring capital inputs for sustainability, which could include establishment of special charges and rate systems.

- Require public and private investors to assess and include the cost of environment measures in capital projects by incorporating environmental impact assessment into legislation.

- Promote the polluter-pay principle of pollutants.

- Assist NGOs in determining mechanisms for creating national environmental trust funds.

- Examine available technology and implement improved building codes which will reduce or mitigate the loss of property caused by disasters.

Regional Initiatives

- Mobilise resources and establish Regional Sustainable Development Funds consistent with the provisions under Chapter 33 of Agenda 21.

- Provide concessional financing to facilitate or encourage the use of clean, appropriate technologies.

- Accelerate the harmonisation of regional fiscal and investment policies.

- Encourage the development of regional capital markets to increase the flow of funds among SIDS.

International Initiatives

- Support national and regional initiatives to create funds to facilitate or encourage the use of clean, appropriate technologies in capital projects.

- Seek increased focus and specificity on issues related to the economic and other vulnerabilities of SIDS in the programmes and plans formulated and implemented by international financing agencies.

- Encourage UN specialised agencies, regional economic commissions and other organs of the UN to establish programmes and/or redirect existing programmes to focus on the sustainable development of SIDS.

- Rationalise the allocation of lending resources within and among international agencies for the consistent promotion of sustainable development.

- Encourage agencies and programmes of the UN system and international organisations to coordinate their activities and to cooperate with regional and sub-regional organisations with a view to maximising the use of international assistance.

- Restore to graduated SIDS their access to bilateral and multi-lateral concessionary financing.

3.5 INFORMATION MANAGEMENT

In view of the primordial importance of information and the volume already existing on sustainable development in regional and international organisations and institutions, which represents great value in time and experience, efforts must be made to access these databases and avoid duplication of studies. The following actions are recommended:

National Policies and Measures

- Prepare and publish national state of the environment reports for public information.

- Encourage the media to promote actively environmental management and sustainable development issues, and assist this process by incorporating in projects, components for media sensitisation and strengthening of information dissemination capacity.

- Establish national information nodes on the sustainable development of SIDS, to encourage at the international level, the development of a small islands' sustainable development information network to facilitate the exchange of experience among SIDS.

- Promote the development by the international community of a new index entry system for relevant information on the sustainable development of SIDS.

Regional Initiatives

- Prepare and publish regional state of the environment reports for public information.

- Promote and facilitate inter-island exchange of information on experiences, and research and development in the area of sustainable development of SIDS.

- Encourage the development by the international community of a new index entry system for relevant information on the sustainable development of SIDS.

International Initiatives

- Develop a new index entry system for relevant information on the sustainable development of SIDS, and assist SIDS to adopt and implement the system.

- Ensure affordable access by SIDS to international electronic networks.

4. GENERAL RECOMMENDATIONS

4.1 NON-GOVERNMENTAL ORGANISATIONS (NGOs)

- Encourage and promote the participation of NGOs and major groups such as women, youth, indigenous people, in national, regional and international consultations and policy formulation relating to sustainable development of SIDS. They should also be involved in the design and implementation of programmes and projects which impact on environment and development.

4.2 VULNERABILITY INDEX

- SIDS together with national, regional and international organisations, and research centres should continue work on the development of vulnerability indices and other indicators which reflect the status of SIDS and integrate ecological fragility and economic vulnerability.

4.3 NATIONAL INTEGRATED PLANNING

- SIDS should actively undertake integrated sectoral and national planning, and in these processes, integrate environment and development issues and concerns.

- Incorporate the use of Environmental Impact Assessments (EIAs) as a tool for integrated development planning. EIAs should also be utilized as a tool for policy development. The scope of application of EIAs should be determined in the context of the limited resources for this activity, and the vulnerabilities of SIDS.

4.4 INTERNATIONAL CO-ORDINATION

Regional and International institutions as well as bilateral agencies should endeavour to co-ordinate activities and minimise duplication in the operation of programmes and the provision of assistance to SIDS.

4.5 ESTABLISHED REGIONAL AND MULTINATIONAL ORGANISATIONS AND PROGRAMMES

- Recognise, consolidate and expand or rationalise as appropriate, the relevant programmes being carried out by the UN System and regional and multinational organisations in the Regions and individual countries.